

WHAT IS CLAIMED IS:

1. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 65% identical to a reference sequence selected from the group consisting of:

- (a) the nucleotide sequence set forth in SEQ ID NO:1;
- (b) a nucleotide sequence encoding the *tag7* polypeptide having the complete amino acid sequence set forth in SEQ ID NO:2;
- (c) a nucleotide sequence encoding the mature *tag7* polypeptide having the amino acid sequence at positions 20 to 182 in SEQ ID NO:2;
- (d) the nucleotide sequence of a *tag7*-encoding polynucleotide which hybridizes under stringent hybridization conditions to a polynucleotide having the nucleotide sequence as set forth in SEQ ID NO:1;
- (e) the nucleotide sequence of a *tag7*-encoding polynucleotide which hybridizes under defined hybridization conditions to a polynucleotide having the nucleotide sequence as set forth in SEQ ID NO:1; and
- (f) a nucleotide sequence complementary to any one of the nucleotide sequences in (a), (b), (c), (d) or (e), or a fragment thereof

2. The nucleic acid molecule of claim 1 wherein said polynucleotide has a nucleotide sequence at least 70%, at least 75%, at least 80%, at least 85%, at least 90%, at least 95% or at least 99% identical to said reference sequence.

3. The nucleic acid molecule of claim 1 wherein said polynucleotide has the nucleotide sequence set forth in SEQ ID NO:1.

4. The nucleic acid molecule of claim 1 wherein said polynucleotide has a nucleotide sequence encoding the *tag7* polypeptide having the complete amino acid sequence set forth in SEQ ID NO:2.

5. The nucleic acid molecule of claim 1 wherein said polynucleotide has a nucleotide sequence encoding the mature *tag7* polypeptide having the amino acid sequence at positions 13 to 182 in SEQ ID NO:2.

6. The nucleic acid molecule of claim 1 wherein said polynucleotide has a nucleotide sequence of a *tag7*-encoding polynucleotide which hybridizes under stringent hybridization conditions to a polynucleotide having the nucleotide sequence as set forth in SEQ ID NO:1.

7. The nucleic acid molecule of claim 1 wherein said polynucleotide has a nucleotide sequence of a *tag7*-encoding polynucleotide which hybridizes under defined hybridization conditions to a polynucleotide having the nucleotide sequence as set forth in SEQ ID NO:1.

8. An isolated nucleic acid molecule comprising a polynucleotide encoding an epitope-bearing portion of a *tag7* polypeptide, wherein said epitope-bearing portion is selected from the group consisting of: a polypeptide having an amino acid sequence consisting essentially of amino acid residues from about 20 to about 40 in SEQ ID NO:2; a polypeptide having an amino acid sequence consisting essentially of amino acid residues from about 55 to about 75 in SEQ ID NO:2; a polypeptide having an amino acid sequence consisting essentially of amino acid residues from about 90 to about 110 in SEQ ID NO:2; and a polypeptide having an amino acid sequence consisting essentially of amino acid residues from about 145 to about 160 in SEQ ID NO:2.

9. The isolated nucleic acid molecule of claim 1 or claim 8, wherein said nucleic acid molecule is isolated from a mouse.

10. The isolated nucleic acid molecule of claim 1 or claim 8, wherein said nucleic acid molecule is isolated from a human.

11. The isolated nucleic acid molecule of claim 10, wherein said nucleic acid molecule has the sequence as set forth in SEQ ID NO: 3.

12. An isolated nucleic acid molecule comprising a polynucleotide which hybridizes under stringent hybridization conditions to a polynucleotide having a nucleotide sequence identical to the nucleotide sequence of the isolated nucleic acid molecule of claim 1 or claim 8.

13. An isolated nucleic acid molecule comprising a polynucleotide which hybridizes under defined hybridization conditions to a polynucleotide having a nucleotide sequence identical to the nucleotide sequence of the isolated nucleic acid molecule of claim 1 or claim 8.

14. A vector comprising the nucleic acid molecule of claim 1, 8 or 11.

15. The vector of claim 14, wherein said vector is an expression vector.

16. A host cell comprising the nucleic acid molecule of claim 1, 8 or 11, or the vector of claim 14.

17. A method for producing an isolated *tag7* polypeptide, comprising culturing the host cell of claim 16 under conditions sufficient to allow the expression of said polypeptide, and isolating said polypeptide.

18. An isolated *tag7* polypeptide produced according to the method of claim 17.

19. An isolated *tag7* polypeptide having an amino acid sequence at least 65% identical to a reference sequence selected from the group consisting of:

(a) the amino acid sequence encoded by an isolated nucleic acid molecule having a nucleotide sequence as set forth in SEQ ID NO:1;

(b) the complete amino acid sequence of the *tag7* polypeptide as set forth in SEQ ID NO:2;

(c) the amino acid sequence of the mature *tag7* polypeptide having the amino acid sequence as set forth at positions 20 to 182 in SEQ ID NO:2;

(d) the amino acid sequence encoded by a polynucleotide which hybridizes under stringent hybridization conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1; and

(e) the amino acid sequence encoded by a polynucleotide which hybridizes under defined hybridization conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1, or a fragment thereof.

20. The polypeptide of claim 18, wherein said polypeptide has an amino acid sequence at least 70%, 75%, 80%, 85%, 90%, 95% or 99% identical to said reference sequence.

5 21. The isolated *tag7* polypeptide of any one of claims 18 or 19, wherein said polypeptide is a mouse polypeptide.

22. The isolated *tag7* polypeptide of any one of claims 18 or 19, wherein said polypeptide is a human polypeptide.

10 23. The isolated *tag7* polypeptide of claim 22 having the amino acid sequence as set forth in SEQ ID NO: 4.

15 24. A method of producing an isolated *tag7*-specific antibody comprising immunizing an animal with the isolated *tag7* polypeptide of any one of claims 18, 19 or 23, and isolating a *tag7*-specific antibody from said animal.

20 25. An isolated *tag7*-specific antibody obtainable according to the method of claim 24.

26. The isolated antibody of claim 25, wherein said antibody is a polyclonal antibody.

25 27. The isolated antibody of claim 25, wherein said antibody is a monoclonal antibody.

28. The isolated antibody of claim 25, wherein said antibody is detectably labeled.

30 29. The isolated antibody of claim 25, wherein said antibody is immobilized on a solid support.

35 30. A method of inhibiting the growth of a mammalian tumor comprising contacting a mammalian cell with a composition comprising an effective amount of one or more isolated *tag7* polypeptides, wherein said isolated

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tag7 polypeptide has an amino acid sequence at least 65% identical to a reference sequence selected from the group consisting of:

(a) the amino acid sequence encoded by an isolated nucleic acid molecule having a nucleotide sequence as set forth in SEQ ID NO:1;

(b) the complete amino acid sequence of the *tag7* polypeptide as set forth in SEQ ID NO:2;

(c) the amino acid sequence of the mature *tag7* polypeptide having the amino acid sequence as set forth at positions 20 to 182 in SEQ ID NO:2;

(d) an amino acid sequence encoded by a polynucleotide which hybridizes under stringent hybridization conditions to a polynucleotide having the nucleotide sequence set forth in SEQ ID NO:1; and

(e) an amino acid sequence encoded by a polynucleotide which hybridizes under defined hybridization conditions to a polynucleotide having the nucleotide sequence set forth in SEQ ID NO:1,

whereby said contacting of said cell with said *tag7* polypeptide inhibits the growth of said tumor.

31. A method of inhibiting the growth of a mammalian tumor comprising introducing into a mammalian cell an effective amount of a nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 65% identical to a reference sequence selected from the group consisting of:

(a) the nucleotide sequence set forth in SEQ ID NO:1;

(b) a nucleotide sequence encoding the *tag7* polypeptide having the complete amino acid sequence set forth in SEQ ID NO:2;

(c) a nucleotide sequence encoding the mature *tag7* polypeptide having the amino acid sequence at positions 20 to 182 in SEQ ID NO:2;

(d) the nucleotide sequence of a polynucleotide which hybridizes under stringent hybridization conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1; and

(e) the nucleotide sequence of a polynucleotide which hybridizes under defined hybridization conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1,

whereby said introduction of said isolated nucleic acid molecule into said cell inhibits the growth of said tumor.

32. The method of claim 31, wherein said tumor is a human tumor and said nucleic acid molecule comprises a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO: 3.

5 33. A method for treating a cancer in an animal suffering therefrom, comprising administering to said animal a composition comprising an effective amount of one or more isolated *tag7* polypeptides, wherein said isolated *tag7* polypeptide has an amino acid sequence at least 65% identical to a reference sequence selected from the group consisting of:

10 (a) the amino acid sequence encoded by an isolated nucleic acid molecule having a nucleotide sequence as set forth in SEQ ID NO:1;

(b) the complete amino acid sequence of the *tag7* polypeptide as set forth in SEQ ID NO:2;

15 (c) the amino acid sequence of the mature *tag7* polypeptide having the amino acid sequence as set forth at positions 20 to 182 in SEQ ID NO:2;

(d) an amino acid sequence encoded by a polynucleotide which hybridizes under stringent hybridization conditions to a polynucleotide having the nucleotide sequence set forth in SEQ ID NO:1; and

20 (e) an amino acid sequence encoded by a polynucleotide which hybridizes under defined hybridization conditions to a polynucleotide having the nucleotide sequence set forth in SEQ ID NO:1, whereby said treatment inhibits the progression or growth, or induces the remission, of said cancer.

25 34. A method for treating a cancer in an animal suffering therefrom, comprising introducing into said animal an effective amount of a nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 65% identical to a reference sequence selected from the group consisting of:

30 (a) the nucleotide sequence set forth in SEQ ID NO:1;

(b) a nucleotide sequence encoding the *tag7* polypeptide having the complete amino acid sequence set forth in SEQ ID NO:2;

(c) a nucleotide sequence encoding the mature *tag7* polypeptide having the amino acid sequence at positions 20 to 182 in SEQ ID NO:2;

35 (d) the nucleotide sequence of a polynucleotide which hybridizes under stringent hybridization conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1; and

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(e) the nucleotide sequence of a polynucleotide which hybridizes under defined hybridization conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1, whereby said treatment inhibits the progression or growth, or induces the remission, of said cancer.

35. The method of claim 30 or 33, wherein said isolated *tag7* polypeptide has an amino acid sequence at least 70%, 75%, 80%, 85%, 90%, 95% or 99% identical to said reference sequence.

36. The method of claim 30 or 33, wherein said composition comprises an isolated *tag7* polypeptide having the amino acid sequence as set forth in SEQ ID NO: 4.

37. The method of claim 30, 33 or 36 wherein said composition further comprises a pharmaceutically acceptable carrier or excipient for said isolated *tag7* polypeptide.

38. The method of claim 31 or claim 34, wherein said polynucleotide has a nucleotide sequence at least 70%, 75%, 80%, 85%, 90%, 95% or 99% identical to said reference sequence.

39. The method of claim 31 or claim 34, wherein said isolated polynucleotide is contained in a vector or a virion.

40. The method of claim 39, wherein said vector or virion is derived from a retrovirus, an adenovirus or an adeno-associated virus.

41. The method of claim 30 or claim 31, wherein said mammalian cell is a human cell.

42. The method of claim 30 or claim 31, wherein said mammalian cell is a tumor cell.

43. The method of claim 42, wherein said tumor cell is a carcinoma cell, a sarcoma cell, a melanoma cell or a leukemia cell.

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44. The method of claim 43, wherein said carcinoma cell is selected from the group consisting of a liver carcinoma cell, an ovarian carcinoma cell, a breast carcinoma cell, a cervical carcinoma cell, a lung carcinoma cell, a prostatic carcinoma cell, a gastric carcinoma cell, a bladder carcinoma cell, a testicular carcinoma cell, a colorectal carcinoma cell, a pancreatic carcinoma cell, an oral cavity carcinoma cell, a squamous cell carcinoma cell, a head and neck carcinoma cell and a teratocarcinoma cell.

45. The method of claim 44, wherein said sarcoma cell is selected from a Kaposi's sarcoma cell, a fibrosarcoma cell and an osteosarcoma cell.

46. A pharmaceutical composition comprising the isolated *tag7* polypeptide of claim 18, 19 or 23 and a pharmaceutically acceptable carrier or excipient therefor.

47. A method of treating a cancer in an animal suffering therefrom, comprising administering to said animal an effective amount of the pharmaceutical composition of claim 46.

48. The method of any one of claims 33, 34 or 47, wherein said animal is a mammal.

49. The method of claim 48, wherein said mammal is a human.

50. The method of any one of claims 33, 34 or 47, wherein said cancer is a carcinoma, a sarcoma, a melanoma or a leukemia.

51. The method of claim 50, wherein said carcinoma is selected from the group consisting of a liver carcinoma, an ovarian carcinoma, a breast carcinoma, a cervical carcinoma, a lung carcinoma, a prostatic carcinoma, a gastric carcinoma, a bladder carcinoma, a testicular carcinoma, a colorectal carcinoma, a pancreatic carcinoma, an oral cavity carcinoma, a squamous carcinoma, a head and neck carcinoma and a teratocarcinoma.

52. The method of claim 50, wherein said sarcoma is selected from a Kaposi's sarcoma, a fibrosarcoma and an osteosarcoma.

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